



**Program Executive Officer
PEO C4I and Space**

***Providing Transformational C4I
Capabilities to the Joint
Warfighter***

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PMW 101/159
18 May 2004**

PEO C4I & SPACE

Distribution A (18 May 2004)



Outline

- ***Importance of C4I for Defense Transformation***
- ***Supporting Allied/Coalition Interoperability***



C4ISR:

Critical to Joint Combat Operations Today

➤ **C2**: Command and Control of air, ground, naval, & SOF from 7,000 mi. away: “unique experience in warfare”

- Permitted unprecedented real time situational awareness & connectivity

➤ **Precision-guided munitions**: a force multiplier

- Low **collateral** damage was fundamental factor to achieving objectives

➤ **Armed Predator**: demonstrated great potential

- Will be a high payoff system in the future

➤ **Blue Force Tracking/ enhanced C4I systems**: increased lethality and decreased response time

- Transformational technologies
- “C4I Systems are moving from systems that support combat capable platforms, to essential components of the combat systems themselves”***

RADM John Kelly, Commander, Abraham Lincoln Carrier Strike Group



Global Information Grid (GIG)

Key GIG Architecture Components

GIG Architecture



- Transformational Communication Architecture (TCA)
- GIG Bandwidth Expansion (GIG-BE)
- Joint Tactical Radio System (JTRS)
- GIG Enterprise Services (GES)/Net-Centric Enterprise Services (NCES)
- Information Assurance (IA)

***Navy is fully engaged to level
“born joint” architectures***



FORCEnet

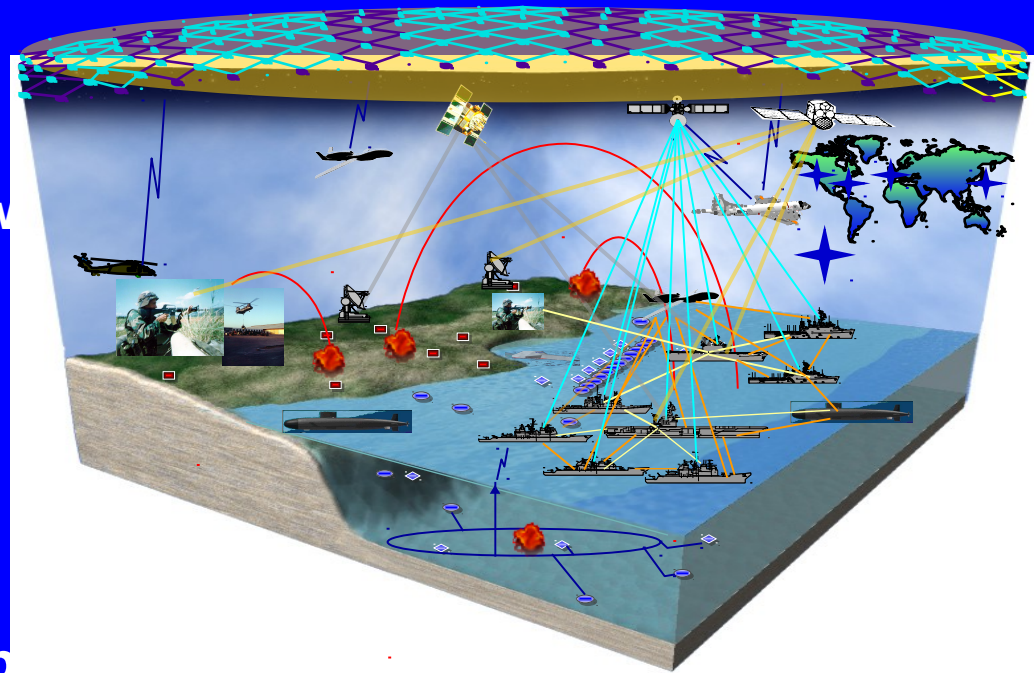
➤ **FORCEnet is:**

- An architectural framework aligned and integrated into a Single Network

- Warriors
- Command & Control
- Platforms
- Weapons

➤ **FORCEnet supports:**
A globally networked, distributed and scalable combat Force

Seamless Information Grid



**FORCEnet Transforms Doctrine, Organization,
Technology, Leadership, Personnel and
Facilities**



Making the GIG and FORCEnet a Reality:

Joint Tactical Radio System (JTRS)

Current Systems (25-30 Families)

- Navigation
- Positioning
- Location
- Identification
- Air to Ground
- Air to Air
- Ground to Ground
- SATCOM



AN/PSQ-6A EPLRS



AN/ARC-210



AN/WCS-3 UHF SATCOM/LOS



AN/PRC-117G SINCGARS

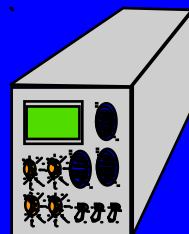


AN/PRC-119 SINCGARS



AN/PSC-5

Commercial Waveforms
Proprietary Waveforms
New Military Waveforms
Technology Base



Common Training and Open Systems
HF/VHF/UHF solution

3 Courses in place of 18
2 NECs instead of 14



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Acquire a Family of Affordable, High-capacity Tactical Radios to Provide Interoperable LOS/BLOS C4I

Capabilities to the Warfighters

Common Family of Radios Across DoD

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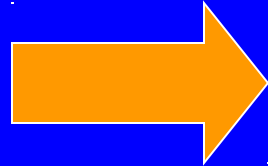


C4ISR: ***Critical to Defense Transformation*** **Tomorrow**

FORCEnet **Naval Capability Packages**

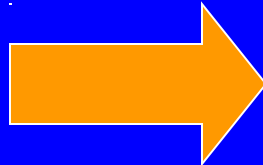
Warfighting **Capabilities**

***Common
Operational
and Tactical
Picture***



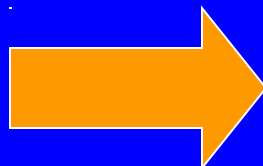
- ✓ **More timely, accurate and shared situational awareness**
- ✓ **Time-sensitive, collaborative targeting (e.g. TAMD)**
- ✓ **Dynamic, reconfigurable networks**

***Communication and
Data
Networks***



- ✓ **High Bandwidth Comm "Pipes"**
- ✓ **Coalition Support**
- ✓ **Information Assurance**

***Intelligence,
Surveillance &
Reconnaissance***



- ✓ **Expanding Data Link Access**
- ✓ **Fused Intelligence Picture**
- ✓ **Networked sensors**
- ✓ **Signals intelligence**



PEO C4I and Space

Aligned to Defense Transformation

PEO Product Lines

PMW 150: Operational Effects
PMW 151: Naval Combat Support Systems
PMW 156: Navigation & GPS
PMW 157: Command & Control
PMW 165: Core Services

PMW 159: Tactical Data Links
PMW 161: Info Assurance
PMW 165: Naval Afloat Networks
PMW 166: Messaging
PMW 173: Sub Comms
PMW 176: Satellite Comms
PMW 179: Tactical Comms
SPO-N14: JTRS-AMF

PMW 150: METOC
PMW 156: GPS
PMW 157: Integrated Imagery and Intelligence
PMW 189: Signals Intelligence

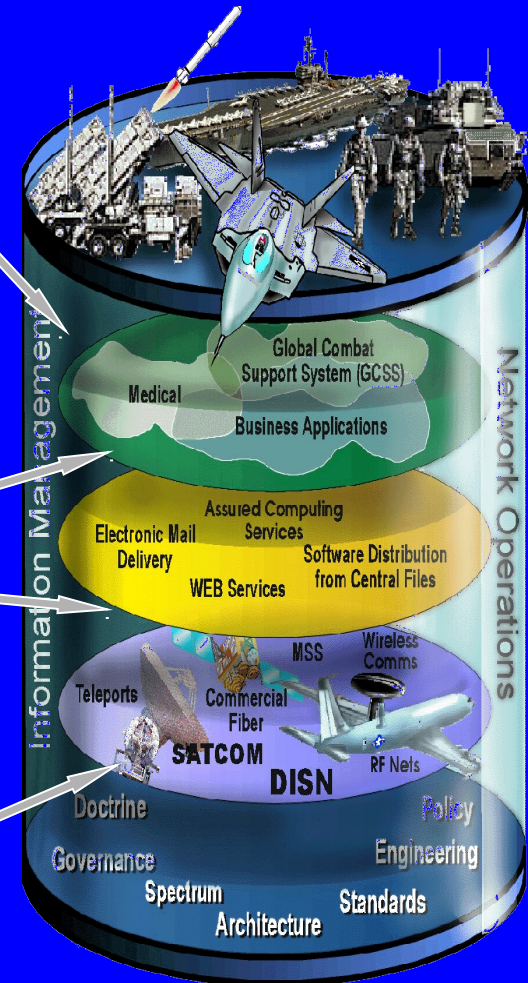
FORCEnet NCPs

**Common
Operational
and Tactical
Picture**

**Communication and
Data
Networks**

**Intelligence,
Surveillance &
Reconnaissance**

GIG Architecture





Outline

- *Importance of C4I for Defense Transformation*
- *Supporting Allied/Coalition Interoperability*



Global Efforts for C4I Coalition Interoperability

Bringing Network Centric Warfare and FORCEnet to Allied and Coalition Partners in all Theaters





What is

"Interoperability?"

- **Interoperability can be defined in a number of ways**
 - Operational Level
 - Technology Level
- **At the Operational Level, Interoperability is about**
 - National Policy
 - Doctrine
 - Releasability
 - Tactics, Techniques and Procedures
 - Service Culture
 - Technology
- **At the Technology Level, Interoperability is about Common or Compatible systems**
 - Standards
 - Hardware
 - Software



Interoperability is more than just technologies - National Policies, Tactics, Techniques and Procedures and Service Culture must also be appropriately aligned



Coalition Enterprise Regional Information Exchange (CENTRIXS)

- **Two-Fold Objective:**
 1. **Provide a Ship-to-Shore SATCOM IP Path**
 2. **Enable Ship-to-Shore Web Replication, Secure E-mail, and Chat Communications Over SATCOM With Allied/Coalition Partners to Compliment the Existing Ship to Ship HF Email Capability.**
- **Support CENTCOM coalition interoperability and information exchange**
- **All deploying USN Strike Groups are being outfitted with CENTRIXS**
- **Currently used in multiple AOR**
 - **AUSCANUKUS, Japan, Korea, GCTF 1, and NIDTS**

Coalition Ships are essential to the success of OEF, OIF and the Global War on Terrorism



Joint Cross Domain eXchange (JCDX)

***formerly Ocean Surveillance Information System
Evolutionary Development (OESD)***

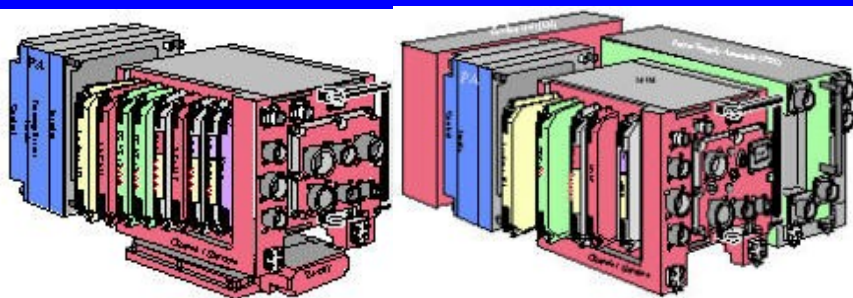
JCDX: A multilevel secure intelligence system, providing operational support for US Joint Intelligence Centers and national/service headquarters for the UK, Australia, Japan and the Republic of Korea

- Supports C2 and intelligence assessments
- Maintains dynamic databases to support a common littoral battle space picture
- Provides a much more effective environment, where collaboration can occur seamlessly between users from different security domains.
- Improves Allied/Coalition interoperability while protecting national disclosure policies



Multifunctional Information Distribution System - Low Volume Terminal (MIDS - LVT)

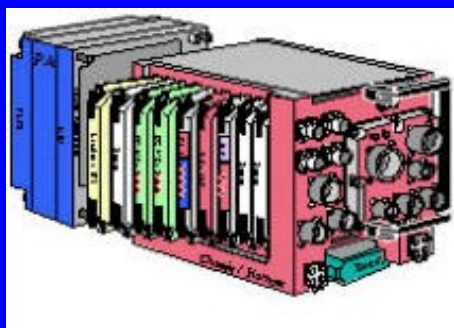
3rd Generation Link-16 Terminals - secure, jam-resistant, nodeless digital networking, 1/2 size weight of JTIDS Class II



LVT-1

LVT-2

US Army



LVT-3 (FDL)

US Air Force

Program Strategy:

- International Cooperation
- Innovative Acquisition Strategy
- Open System Architecture
- Integration onto Large Number of Platforms

Partner Nations

US



France



Italy



Germany



Spain



Characteristics:

Maximum Power Transmission	200 watts
Relay Range	1200 nm
Communication Range	300 nm (C2-C2)
Voice Channels	2
MTBF	1000 hr
Volume	16.4 dm ³ (.45
cu ft)	
Weight	23 kg (50.6 lbs)

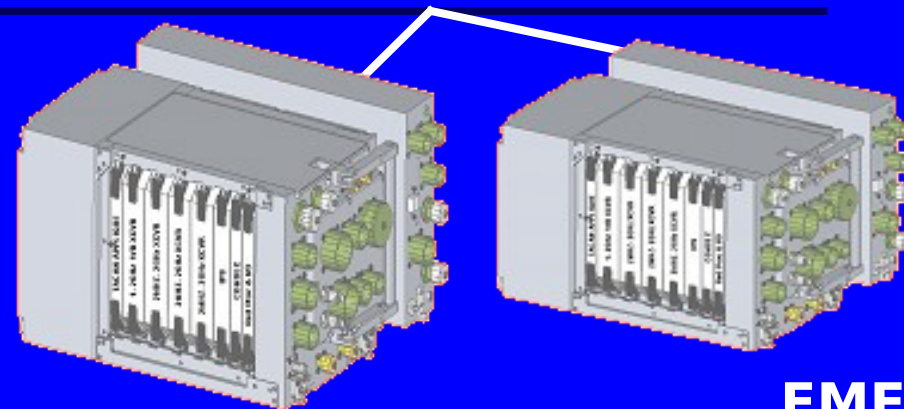


MIDS JTRS (FY 2006)



MIDS-LVT

Link-16, J-Voice, and TACAN by utilizing dedicated modules



EMF

MIDS JTRS

- Link-16, J-Voice & TACAN on Single Channel
- GPS Receiver
- 3 JTRS universal channels
 - 2 MHz - 2 GHz capability
 - Programmable with JTRS Waveforms
- Expandable to 8

Channel
"Plug and Play" Replacement,
Form Factor Compliant with
over
7,000 Joint Coalition Platforms



Interoperability Challenges

- Multiple Definitions of Allied Interoperability (AI)
 - Bi-lateral, multi-lateral
- USN/PEO not in control of all factors driving Interoperability
 - Differing National/Fleet priorities
 - Allied interoperability often not the Number 1 driving factor in system requirements (ORDs/CDDs)
- One size (solution) does not fit all
 - Numerous and differing interface challenges
- Technology transfer is often a sensitive issue

BUT, the fact that we are able to make it work is a credit to our respective desire to work together!



Summary

- ❖ **PEO C4I and Space is aligned to support:**
 - **Advanced C4I integrated capabilities today**
 - **Transformational C4I capabilities for the joint warfighter tomorrow**
 - **Multi-lateral/bi-lateral interoperability solutions for Allies and Coalition partners**